

## EVIDENCE TO DEARING

### THE SIZE AND STRUCTURE OF HIGHER EDUCATION

#### **A PAPER BY THE DEPARTMENT FOR EDUCATION AND EMPLOYMENT**

*This paper presents the Department's view on the factors that should be taken into account in determining the future size and structure of higher education. The Department believes that due weight should be given to affordability; to the economy's future demand for highly qualified people; and to the rates of return to the nation on the tax-payer's investment and to the individual participating in higher education. Urgent steps should be taken to address concerns over teaching quality and graduate standards, following the recent rapid expansion of participation in higher education. Serious consideration should also be given to increasing the concentration of research funding and to promoting stronger links with local communities.*

#### Introduction

1. The Government's record in higher education speaks for itself. Diversity has been promoted through competition. There is now a greater choice for students than ever before. More young people have been encouraged to stay on in school or college after 16 and then to apply for a place in higher education. There are more opportunities in higher education for both young people and adults. These developments are raising the levels of skills in the work-force and bringing benefits for the economy. As the Government's evidence on purposes emphasises, higher education also has wider social and cultural benefits and promotes individual personal development.

2. Rapid growth and diversity raise issues which need to be addressed in considering the future of higher education, including its size. This paper identifies issues in three particular areas - quality and standards, research and links with the wider community.

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3. The future size of higher education will depend also upon many other factors, including the funds available and the demand both for places in higher education and for graduates in employment. The annexes to this paper offer advice from the Department's analytical services on:

- A. demand for places; and
- B. demand for graduates.

4. So far as the funds available are concerned, public expenditure will always be constrained, and there can be no assumption that higher education's share of the total education budget from public funds will increase or can even in the medium term be sustained at its present level of over 20% of the education budget. Income from other sources is no easier to forecast over the next twenty years. The Department takes the view that, so long as initial full-time higher education is funded from the public purse, the projected rate of return to the nation's investment should be a major factor in determining the appropriate size of initial full-time higher education. Annex B analyses rates of return - including the gap between the rates of return to the economy and to the individual. These rates will be influenced by the economy's future demand for highly qualified people, which on present projections (presented in Annex B), is likely to be out-stripped by the supply of graduates by the year 2000. These projections are based on past trends of graduates moving into higher level occupations; an increased supply of graduates will itself affect the future structure of employment.

### Quality and standards

5. The Government has placed the quality of teaching and learning and the standards of qualifications at the heart of its education policies. The Inquiry offers a unique opportunity to address, in the wake of higher education's expansion, the concerns that have arisen on quality and standards in higher education, building on the foundations that have already been established.





6. The Government has set in place for the first time arrangements to provide for the assessment of the quality of teaching and learning in all universities and colleges of higher education in all subject areas. These assessments are carried out by reference to the objectives which each university or college has set for the relevant subject area. It is reassuring that the quality of teaching and learning has been found to be at least satisfactory in the vast majority (99%) of assessments carried out so far. A number of surveys have suggested that, by and large, students too are satisfied with the quality of teaching and learning.

7. What is less clear is whether the objectives set by universities are sufficiently demanding and whether the standards attained by graduates meet the requirements of the modern world. These are matters which are the responsibility of higher education institutions, individually and collectively. The standards expected of graduates are not, however, usually defined except in general terms; and employers may have to rely on additional means of determining the suitability of graduates for their purposes. The proportion of graduates attaining first and upper second class honours has increased in recent years; but it is no clearer today than in past decades what the award of such qualifications means in relation to the standards achieved.

8. The Department wants to see the UK's reputation for excellence in higher education maintained and, if possible, enhanced. In its view, it is no longer sufficient to rely on the award of qualifications without defined standards of attainment. An important issue for the Committee to consider is whether there is any prospect of achieving common standards in a system where there are some 100 universities and colleges awarding their own qualifications and where the subjects studied and the objectives set are so diverse as to make comparisons very difficult. Nevertheless, the Department believes that the Committee should explore the scope for a common framework for qualifications with a requirement that standards are defined.





9. Finally, there is the connection with the future size of higher education. In order to make the best use of available resources, the Department believes that it is important to maintain the relatively high completion rate in UK higher education. While the concept of completion needs to allow for the increased flexibility in the way that courses may be undertaken as well as the development of life-long learning, students with limited prior qualifications have tended to have lower completion rates. If a significant proportion of students struggle to reach the required standard, there may be an incentive to lower the standard. The Department encourages the Committee to take these considerations into account in considering the future size of higher education.

### Research

10. The UK has an impressive research record. With only 1% of the world's population, it carries out 5% of the world's research effort. Bibliometric analysis of scientific publications and citations shows that it is responsible for 8% of world scientific publications and 9% of world citations.

11. The last twenty years have seen a growing trend towards international collaboration in research. The UK has built a particularly strong presence in EU research, being a partner in 75% of all projects in the current Framework Programme and having had more research links than any other member state in Framework III. UK researchers have also become increasingly involved in collaboration with researchers based in the USA and further afield.

12. Higher education institutions are not responsible for the UK's entire research output. But they do account for the largest element (60%) of UK research publications; and universities and colleges have major links with other significant sources of research publications - e.g. hospitals (22%). Higher education also plays a key role in training highly qualified people who go on to research in industrial and public research establishments, as well as universities and hospitals.





13. Ensuring the continuing dynamism and excellence of university research will be vital to the innovation on which the UK's competitiveness will depend. The Government's policy for university research within the Science and Engineering Base was set out in the 1993 White Paper, "Realising Our Potential". A key issue is whether the current system of organising and funding research in the UK requires any further changes, for example, to take account of the ever-increasing cost of world class research or to capitalise fully on the opportunities presented by such future developments as the further globalisation of research.

14. In order to promote the most effective use of scarce resources, the Government is clear that public funding for university research must:

- give priority to top-quality, leading edge research;
- support national needs for wealth creation and quality of life;
- encourage the flexible development of new lines of research, particularly in interdisciplinary or multi-disciplinary subjects;
- allow for appropriate collaboration, both within the UK and with research partners abroad;
- support the training and development of future academics and researchers; and
- minimise bureaucracy.

15. There may be scope for more co-operation than exists at present within and between universities - either in collaborating in joint centres of excellence in particular subject areas or in offering research facilities to individual staff from departments elsewhere which do not have access to research funds. A trend is emerging within the UK for scientific papers to be produced by three or more researchers collaborating across several institutions or organisations. Any method of allocating public funding for research should allow for fruitful collaboration and the emergence of new groupings of researchers. The rising cost of support infrastructure gives a further impetus to this development.



16. The Higher Education Funding Councils provide underpinning funds for university research, while the Research Councils provide the other main stream of public funding, as well as facilities for university research, including embedded units and the provision of national and international facilities. The values of the two streams are roughly comparable (about £1 billion) with the Research Councils having a significant impact on the development of university research across their areas of interest. Research Council grants made through peer review on the grounds of excellence help develop the highest quality research teams. They also have a remit to ensure that underpinning expertise of relevance to the country's future wealth creation and quality of life is nurtured.

17. The Higher Education Funding Councils' allocation of funds is also highly selective. At present, over 70% of the funds allocated by the Higher Education Funding Council for England (HEFCE) go to top rated (4 and 5) departments. The Government believes that UK research must remain world class. The mounting costs of investing in research infrastructure, particularly in scientific and technological equipment, argue for the concentration of resources and against significant turn-over in the departments receiving research funding. This may point to a higher threshold for research funding in science and technology. There may need in future to be even greater selectivity, but excessive barriers could stifle competition; prevent the development of emerging departments; and discourage research projects which, though not necessarily of world class, are important to the regional or local economy. The Committee may also wish to consider the links between research activity and the quality of undergraduate learning.

18. The pattern of research funding has changed since the dual support system was first established. In terms of research cash income, the Research Councils provide one third of institutions' income from specific research grants and contracts; almost another third comes from UK charities and industry and well over 25% from the rest of the UK public sector and the EU. The pre-1992 universities' total income from research grants and contracts rose by 72% between 1989-90 and 1994-95, and now accounts for more funds than the funds allocated for research through the Higher Education Funding





Councils. A plurality of funding sources will remain essential in sustaining the level of output and diversity of research.

19. The block grants provided by the Funding Councils fund the infrastructure on which all other research is predicated. The most important element of this infrastructure has been the permanent academic staff of universities and colleges. Although these staff may engage others to assist in the research, they themselves carry responsibility for its direction and development. The inclusion of research funding in the HEFCs' block grants gives universities and colleges scope for the flexible deployment of academic staff, according to their research and teaching strengths at the time, and their interpretation of the way that research activity is developing both in terms of the subject and, in appropriate cases, in its exploitation. The block grants also allows institutions to support the training of future researchers for academe, public services, industry and commerce, whether in receipt of Research Council awards or not.

20. Universities also meet from their Funding Council grant much of the costs of premises and central computing, although in the case of new buildings these are now sometimes funded through borrowing or from non-Government sources. The growing sophistication of equipment needed in leading edge research is undermining the concept of "well found" laboratory. The Funding and Research Councils have mounted a successful joint challenge initiative for equipment in areas of high quality research relevant to Foresight priorities, with the peer review being undertaken by the Research Councils. Together with contributions from private funds, this initiative will be providing some £50 million for university research equipment in 1996-97. The Government has asked the HEFCE and the Research Councils to earmark funds for a further research equipment initiative in 1997-98. The other Funding Councils are considering joining the scheme.

21. The Funding Councils have also been responsible for developing and funding the Joint Academic Networks - including international links, which support collaboration with overseas researchers. Pressure on these links is likely to continue growing, and it will be important for UK research that the Councils' Joint Information Systems





Committee (JISC) is successful in its search for solutions which ease congestion on international lines. The JISC's work in funding the provision of data-sets and electronic services and in piloting Electronic Library projects is promoting wider access to resources for research, and should ensure that UK research is well placed to exploit information and communication technologies at the start of the 21st century.

22. Funding Council block grant support has thus enabled universities to develop a strong research base which they can use in undertaking projects and contracts for others. At the same time, in being unhypothecated, this grant has left universities and colleges free:

- to respond flexibly to changing circumstances and priorities;
- to support new lines of research which might not initially attract outside funding;
- to encourage interdisciplinary and multidisciplinary approaches between departments;
- to foster promising young researchers and departments;
- to develop synergy between teaching and research; and
- to collaborate on research with industry and charities, as well as to undertake Research Council projects.

These are all functions which need to be managed locally rather than planned from the centre.

23. Between 1992 and 1995, the Government transferred £154 million from the Funding Councils to the Research Councils to clarify the dual support boundary. The balance of evidence from an independent review of the transfer suggests that this resulted in a slight increase in the volume of research supported at the expense of additional pressure on the research infrastructure in universities. The Government has taken steps to relieve this pressure and recognises the continuing importance of channelling public funding for research through systems that support the university infrastructure. The Government expects universities to cost their contract work on a full economic cost basis. This requires accounting systems to be sufficiently robust and refined to achieve a full recovery of overhead costs on all contracts with Government Departments and industry, except where the research is undertaken as a jointly funded



venture. Such systems also enable overheads for research funded by the charities to be identified.

24. Whatever the support system, tensions may mount between:

- traditionally based subject departments and emerging multidisciplinary teams;
- those engaged in basic and strategic research and those undertaking shorter term contract work;
- competing interests of individual researchers, departments and institutions; and
- competing demands for sophisticated equipment and facilities.

The Committee of Inquiry will wish to consider how these tensions may best be resolved and the implications for the future size and shape of higher education. In doing so, the Committee may want to consider other models of organising research and channelling public funds for it. Other countries - particularly in Europe - separate research institutes from teaching establishments. But the evidence on the performance of UK universities does not suggest that such separation leads to more effective output of research. On the contrary, that analysis suggests that the UK's existing system of organising and funding research has been highly successful. But it will be important for the Committee to satisfy itself whether any other system could meet our needs better over the next twenty years or so and, failing that, what improvements should be made to the current system. In particular, the Committee may wish to examine the scope for universities to co-operate in establishing major world-class centres, whether in particular disciplines or multidisciplinary in focus, and to ensure best use of expensive state-of-the-art facilities by widening access to other research teams or individuals.

25. If the Committee concludes that the advantages of combining teaching and research in universities and of ensuring flexibility through block-grant funding outweigh the tensions, there remains the question of whether all universities should be eligible for access to research funds. If not all institutions were to be allowed to compete, it would then have to be decided how eligibility for research funds should be determined, without entrenching a new binary line and fossilising research capability. If all institutions continue to be allowed to compete, then a view may need to be taken on





the degree of selectivity, taking into account the guidance to the HEFCE at the time of the 1996 Budget Statement.

26. The Department encourages the Committee to examine these issues, to recommend ways of safe-guarding top quality world class research in UK universities, and to take the recommendations into account in considering the future size and structure of higher education.

### **Links With The Wider Community**

27. Not all universities and colleges will be able to develop departments with world-class reputations for research. But the size and diversity of UK higher education gives scope for institutions to achieve excellence through other missions.

28. In particular, many universities and colleges place a premium on their local focus. Some have strong links with a range of local employers and have made a significant contribution to local regeneration and economic development. Others have fostered strengths in serving particular professions regionally. The Department wants to see even greater responsiveness in universities and colleges through a market approach to local and regional needs. Full-time study from home has advantages for the taxpayer under current systems of student support.

29. The Government's evidence on shape, structure and links with employment discussed the scope for higher education to adapt to shifts in the labour market and in particular to respond to the needs of local small and medium-sized enterprises. These include technology transfer and applied research and development, as well as the supply of highly qualified people and continuing professional development. Preparing students for changing employment needs and helping them to achieve the fullest personal development, to the benefit of society and individuals alike, is by no means the preserve of full-time initial higher education. Part-time, postgraduate and continuing education make an important contribution, particularly for those with family or work responsibilities.





30. Opportunities for high quality part-time, postgraduate and continuing education need to be widely available if lifetime learning is to become a reality for many. Universities can do much to provide such opportunities, both locally and through distance learning. The Open University, for instance, has pioneered high quality distance learning which provides access to those with or without conventional entry qualifications and attracts students from around the world. Other universities and colleges have achieved considerable success too in both these missions - often against strong international competition in the overseas market. The potential contribution of information technology in facilitating such opportunities has, however, yet to be fully explored. The Department wishes to see universities and colleges making full use of all the means available to them in responding to local and other demands for lifetime learning.

31. The Department encourages the Committee to consider how higher education's links with the wider community and in particular its role in lifetime learning can be enhanced, and what the implications might be for its future size and structure.

Department for Education and Employment

January 1997



### DEMAND FOR HIGHER EDUCATION PLACES

1. This annex considers, first, some of the factors affecting the demand for full-time initial higher education from young and mature people. It then offers some illustrative projections of such demand based on three hypothetical scenarios and explores various issues of efficiency and effectiveness. The paper concludes by referring to demand for part-time, postgraduate and continuing education.

#### The demand from young people for full-time initial higher education

2. The success of the Government's policies for schools and further education has led to more young people staying in education beyond the age of 16 than before. This in turn has meant more achieving advanced-level qualifications: by 1994, 28% of young people in England had attained two or more GCE A levels, compared with only 14% in 1979, while in Scotland 31% of young people left school in 1995 with three or more Highers, compared with 19% in 1981. The recently introduced Advanced GNVQs and the advent of Modern Apprenticeships should enable more young people to follow a vocational route into higher education.

3. The Government expects this trend to continue. It has endorsed a new target for the year 2000 for 60% of young people to achieve two GCE A Levels, an advanced GNVQ or NVQ Level 3 by the age of 21 (foundation target 3)<sup>1</sup>. The primary purpose is to raise the level of qualifications and skills among young people who are about to enter the labour force. But, if this target is met, the pool of suitably qualified young people who are potential applicants for higher education will also continue to grow.

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<sup>1</sup> In Scotland, the comparable ASCETT target is 70% of young people.





4. How many of these potential applicants will actually seek places in higher education will depend on their perceptions of the costs and benefits of spending time at university or college and of the other options open to them - whether employment or other routes to qualifications, including further education and Modern Apprenticeships. The costs will be influenced by the level of student support from public funds. The benefits of higher education may include not only better skills and qualifications which will lead to better job prospects, but also the intellectual satisfaction and personal enrichment that higher education can bring.

5. It has long been difficult to project future participation accurately. If progress continues to be made towards the Government's foundation target 3 and its Scottish equivalent and if young people continue to see value in enhancing their qualifications and skills, then their demand for initial higher education can be expected to grow. On the other hand, if the continuing economic recovery opens up more job opportunities for those with advanced-level or equivalent qualifications, more young people may prefer to enter employment immediately. Even if they take this route, however, some may subsequently progress to higher education.

#### The demand from mature people for full-time initial higher education

6. Changes in the nature of work have led employers to demand higher skills from their work-force. Faced with competition for jobs from younger people with higher qualifications, older people have increasingly sought to improve their own levels of skills. The numbers of mature entrants to full-time higher education more than trebled between 1979 and 1994, whilst the numbers of young entrants doubled. If participation among mature students were to continue at the current rate, over half of today's 18 year olds could expect to enter higher education (either full-time or part-time) at some stage in their life.



7. Pressures on people of all ages to improve their qualifications are likely to continue. Most of those who will be in the work-force in the year 2000 are already in it. In 1995, some 12% of the working-age population in Britain were qualified to first degree level or above; and a further 8% had a higher education qualification below degree level.

8. But many may seek to improve their qualifications through part-time study which allows them to stay in a job or to fulfil family responsibilities. And, as more young people acquire HE qualifications, there will in time be proportionately fewer among the work-force without them. There will nevertheless remain some people with advanced-level or equivalent qualifications who have not received any higher education. So the pool of suitably qualified mature entrants seeking full-time initial higher education will remain high but will not continue to grow as fast as in the early nineties.

### **Projections of future demand for full-time initial higher education**

9. Chart A shows Government projections of demand for full-time initial higher education from both young and mature people. These comprise:

- a projection based on current levels of participation and
  - three scenarios projecting how participation might change in the future.
- These projections assume, for the purpose of illustration, that there are no constraints on the supply and funding of places, and that present policies on student support are continued.

10. The illustrative projections reflect different assumptions about factors which will influence demand from young people to enter full-time higher education. These factors include:

- the numbers of young people who achieve the qualifications to enter higher education: the projections are built on the Department's current forecasts of level 3 achievement by young people;





- the propensity of young people who have achieved the necessary qualifications to go on to higher education: this propensity has increased rapidly (particularly for those with GCE A levels) since the late 1980s; the central projection assumes that present propensities are sustained but do not increase further; and in particular
- the uptake of Advanced GNVQs and the propensity of those who take them to go on to higher education: the central projection assumes that this propensity will lie midway between that for young people with GCE A levels (which is currently approaching 90%) and that for young people with level 3 vocational qualifications (which is currently around 40%), and that broadly one third of young people achieving level 3 by the year 2000 will take Advanced GNVQs rather than GCE A levels (or other vocational qualifications).

The projections are subject to significant margins of uncertainty. Young people will be influenced in their choices by the academic demands of courses, the financial costs to them of higher education, and their employment prospects. There are also uncertainties regarding the numbers of people who will follow different routes to level 3. This paper illustrates these uncertainties by considering three different scenarios.

11. In the **central** scenario, the demand from young people to enter higher education raises the participation rate from just over 30% at present to 38% around the turn of the century. This rising demand results from the projected increase in the numbers of young people achieving level 3. The growth in demand is, however, damped by the expectation that an increasing number of young people will achieve level 3 via Advanced GNVQs and that these young people are less likely to go directly on to higher education than young people with GCE A levels.

12. The **high** scenario shows what would happen if demand growth were not damped in this way. The result would be participation rising close to 42% by the turn of the century.



13. The **low** scenario shows the result if the growth in the propensity of qualified young people to go on to higher education is reversed, as the economy moves out of recession and vocational qualifications become more important. Demand from young people to enter higher education raises participation only slowly to around 35% by the turn of the century.

14. Participation among mature entrants is assumed to follow a similar pattern to participation among young people. But allowance has been made to reflect the fact that, as more young people acquire higher education qualifications, there will be fewer remaining people with advanced-level qualifications who might enter initial higher education later in life. The participation rate for young people implied by each variant is shown in Chart B.<sup>2</sup> All three scenarios would lead to significant budgetary pressures under the current funding arrangements.

15. The projection of student numbers under current policy depends not on the number of qualified leavers and their propensity to continue into higher education but on a constant age participation rate. Chart C shows that the total number of 18 and 19 year olds has now bottomed out and, apart from a slight dip in 1999/2000, will continue to rise until 2004/05. However, the downward trend in the total number of 21 to 24 year olds will continue until 1999/2000, and the turn-around is even later (2009/10) for those aged 25 to 34. The projection shown in Chart A based on current policy shows that student numbers will remain fairly flat up to 2004/05 as a result of these demographic changes.

16. These projections are for illustration and are intended to help the Committee gauge the likely level of demand for full- time initial courses of higher education and the implications for the size of higher education. The Government is providing a further, detailed paper on student number projections.

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<sup>2</sup> Participation rates have been shown for Great Britain as a whole: participation rates for the United Kingdom would be very similar. There are significant differences between the participation rates in different parts of Britain. In Scotland and Northern Ireland, existing participation rates already exceed the rates implied by the variants for the end of the century.





## Demand for part-time, postgraduate and continuing education

17. This annex has been concerned primarily with demand for full-time initial higher education because it is this sector which at present attracts the majority of public funds. This is not intended to suggest that demand for part-time or postgraduate and continuing education is unimportant in influencing the overall size of higher education. But where participation requires students to meet a significant proportion of the costs - as in part-time, postgraduate or continuing education at present - it is likely to be heavily influenced by perceived employment needs or the personal benefits which students expect to derive from higher education.

18. Higher education can make a significant contribution to updating the skills and knowledge of employees and other individuals - for example, through short postgraduate courses, part-time vocational education and continuing professional development. As noted elsewhere in the Government's evidence to the Committee<sup>3</sup>, part-time, postgraduate and continuing education has expanded rapidly over recent years and now forms a significant proportion of total higher education provision. The Committee may wish to express a view on:

- the scale of the future demand from employers and individuals for such higher education; and
- the impact of this demand on the size of higher education as a whole.

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<sup>3</sup> See the paper on *Higher Education: Shape, Structure and Links with Employment* submitted in June 1996 by the DfEE, the Scottish Office, the Welsh Office and the Department of Education for Northern Ireland.



Chart A: Home Domiciled, Full-Time & Sandwich Undergraduates, All Years, at GB Institutions

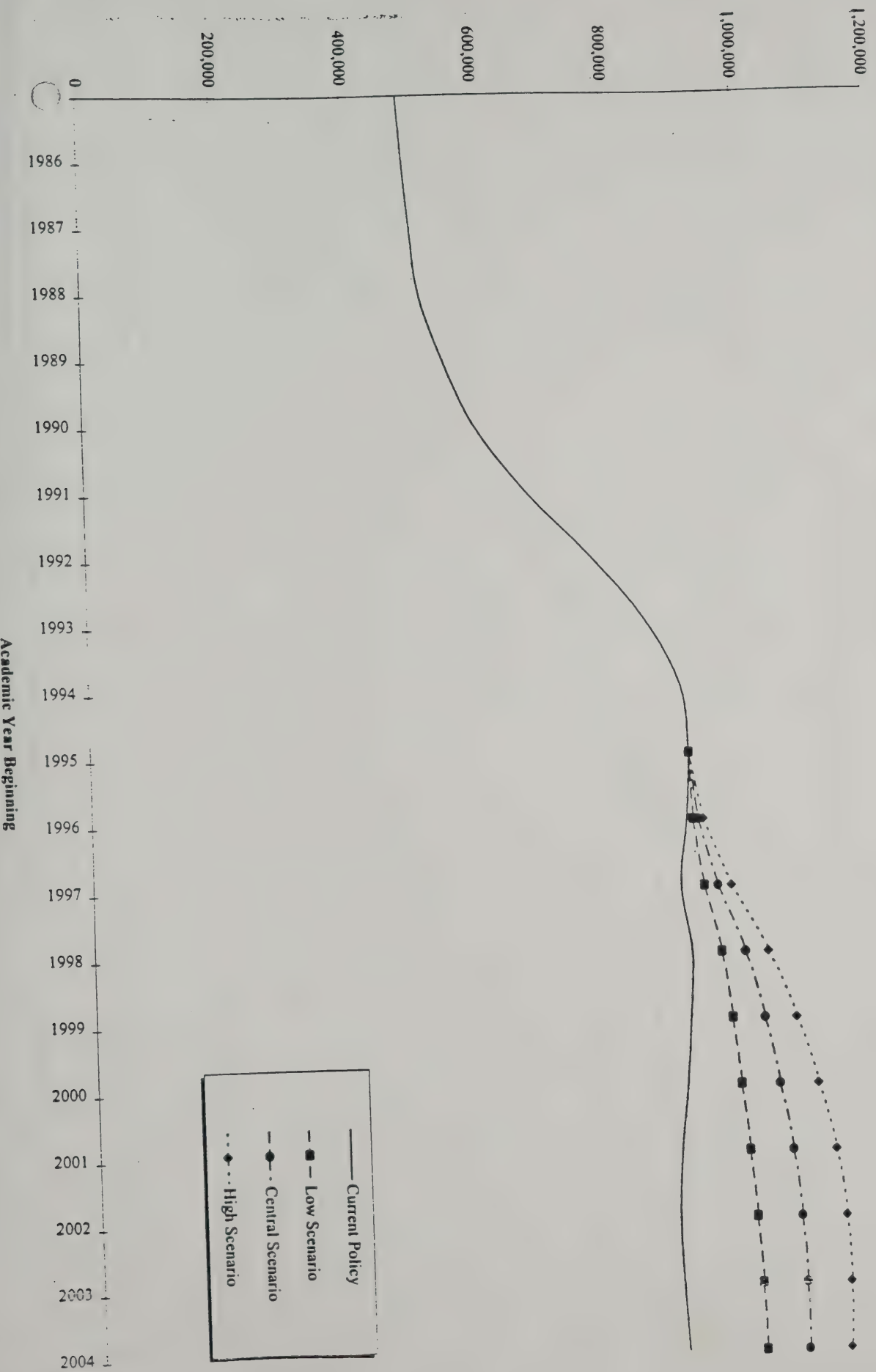
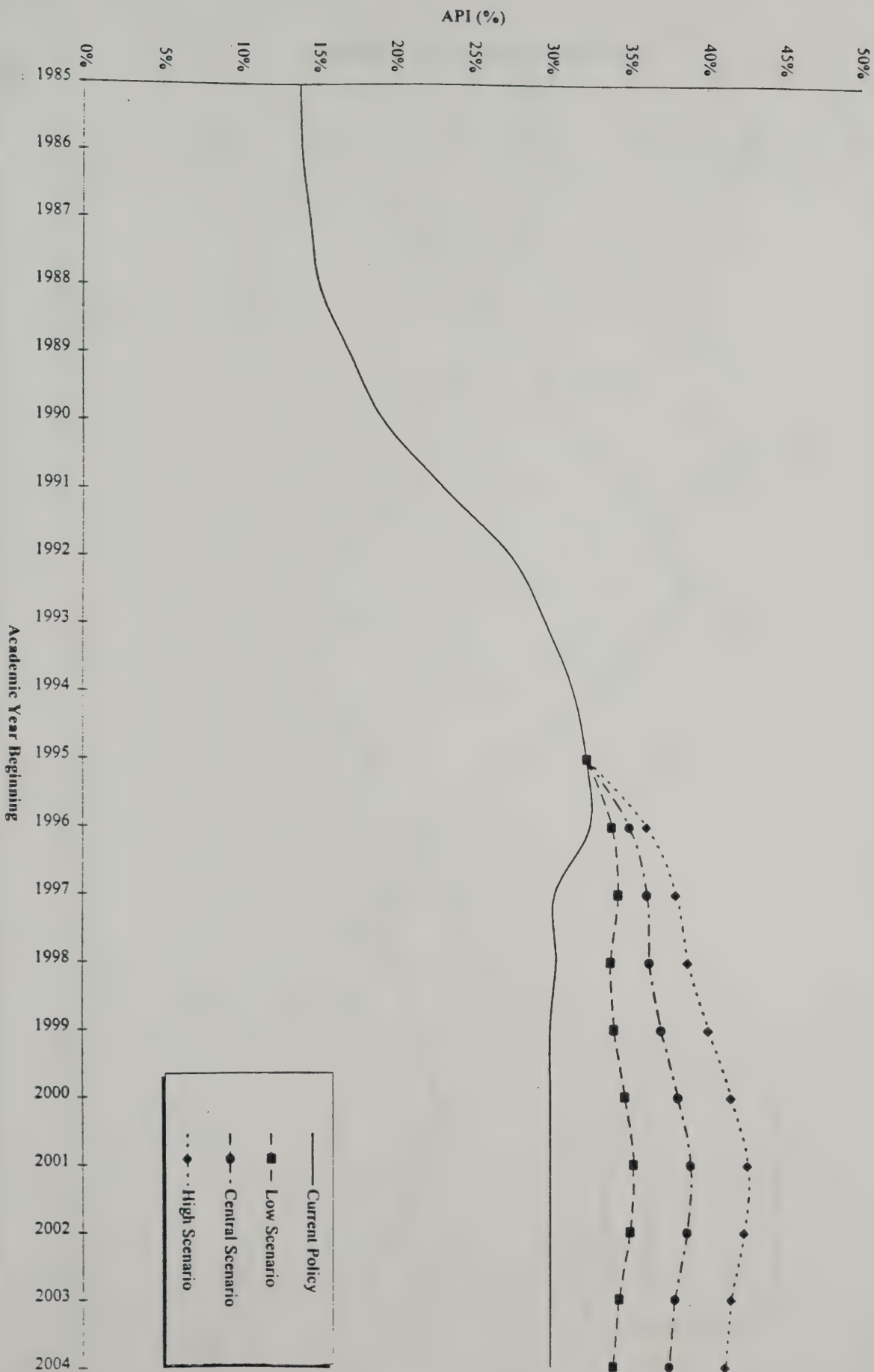






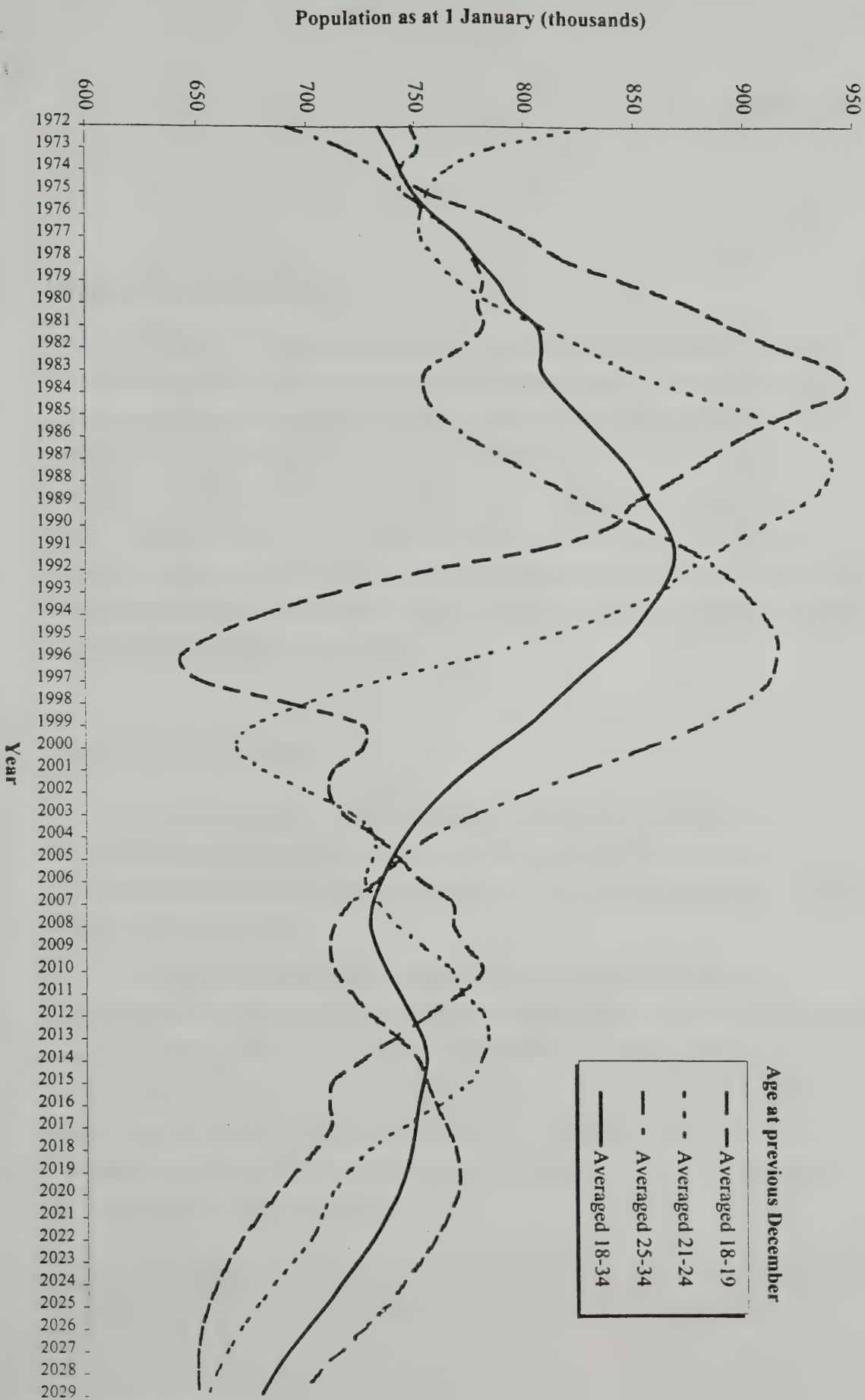
Chart B: Age Participation Index (API), Great Britain



The API is the number of home domiciled, young (aged less than 21) initial entrants to full-time & sandwich undergraduate courses of higher education, in institutions of further or higher education in Great Britain, expressed as a proportion of the averaged 18 to 19 year old population. Initial entrants are those entering higher education for the first time.



Chart C: Demographic Trends and Forecasts, Great Britain, 1972 to 2029



Source: DfE population estimates, based on information from The Government's Actuary Department (GAD) and The Office of National Statistics (ONS).





### DEMAND FOR GRADUATES

1. The Government believes that there should be more emphasis than hitherto on the outputs of higher education in considering the issue of size. That in turn means giving more weight to the importance of the economy's demand for graduates<sup>1</sup>. This annex looks, first, at the contribution of graduates to the economy and presents analyses of the rates of return on higher education. It then discusses the changing labour market for graduates, referring to unemployment rates and to projections of demand for graduates. The annex concludes by looking at the implications for the rate of return to the nation's investment in higher education and by referring to international comparisons of the stock of graduates.

### Graduates and the economy

2. The appropriate size of higher education will depend to a large extent on the economy's need for the skills that higher education provides. So long as the Government provides resources for higher education, its investment must demonstrate a satisfactory rate of return.

3. The benefits to the economy are spread over many years. One way of measuring them is to compare the additional earnings that graduates derive from their degrees over their working lives (as a market-based measure of their higher productivity) with the cost of producing those degrees. The cost includes not only tuition costs but also the earnings students forgo during study. Not all of the higher earnings which graduates on average receive are the result of higher education, and allowance needs to be made for this.

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<sup>1</sup> Most of the arguments in this annex apply to leavers with diplomas as well as graduates. But, for simplicity, figures are given only for graduates.



4. Our best estimate of the real rate of return to the UK economy on male graduates in the early 1990s is 7 to 9 per cent<sup>2</sup>. This exceeds the standard discount of 6 per cent used in public expenditure appraisals, although decisions on public expenditure need to take account of affordability as well as returns. Whilst the results quoted are for young male graduates, preliminary research of the returns on women and mature graduates indicate that returns on all graduates are likely to be similar to the quoted range. There are, however, considerable differences in the returns associated with different subjects.

5. These calculations provide a narrow measure of graduates' economic impact. Graduates are likely to bring wider benefits to the economy than are captured in their pay packets. Studies show that they may raise the productivity of non-graduate colleagues and help spread technological change. They may also contribute to society and the economy in other ways - e.g. through voluntary work or as parents. The implication is that the overall social rate of return is likely to be higher than the figure of 7 to 9 per cent noted in paragraph 4.

6. The social rate of return on future investments in higher education will depend in part on the economy's future need for graduates and in part on the future trend in the real level of teaching costs. Other things being equal, the recent reduction in higher education costs per student will increase the rate of return. Rising demand for graduates can be expected to increase graduate pay premiums and raise rates of return. If, however, supply expands even more rapidly than demand, then pay premiums can be expected to fall. The Government believes that projections of employers' future requirements for graduates and the implications these have for graduate pay premiums and the rate of return on the nation's investment are relevant considerations when determining the appropriate number of full-time undergraduates in higher education. But some allowance should also be made for the potential wider benefits of graduates which cannot be captured in estimated rates of return.

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<sup>2</sup> The calculations are subject to margins of uncertainty reflecting both data limitations and uncertainties over the links between education and employment. Further details of the analysis underlying the calculations are set out in a DfEE working paper, *Rates of Return in Higher Education* (Colin Sausman and James Steel), which will be made available to the Committee.





primarily for such general intellectual and communication skills rather than specialist skills and knowledge.

11. With the continuing spread of new technology and organisational changes, the number of jobs in higher managerial, professional and associate professional occupations is expected to continue growing. If the level of skills required continues to rise in these sectors, there may be scope for graduates to take a larger share of jobs, particularly in those higher level occupations that have not previously recruited many graduates. This would enable a substantial part of the increased supply of graduates to be absorbed into demanding jobs. And, if graduates enhance the quality of work or productivity, they may alter the nature of the job and in turn create further demand for graduates.

12. The most recent detailed study<sup>3</sup> of the future graduate labour market, based on the continuation of trends observed during the 1980s, concludes that demand will grow by around 40 per cent between 1991 and 2001. However, the supply of graduates is projected to grow even faster, increasing by around 50 per cent over the same period. On these projections, the increase in supply will exceed growth in the demand for graduates by the end of the century, and some decline in pay premiums might be expected.

13. These projections are based on past trends of graduates moving into higher managerial, professional and associate professional occupations. It seems possible that changes in the structure of employment which favour graduates will be faster during the 1990s than the 1980s. In particular, there may be much greater potential for graduates to be employed by small and medium enterprises than has hitherto been the case. But there is a limit to how many extra graduates the economy can absorb before the increased productivity they generate starts to decline.

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<sup>3</sup> Commissioned by the DfEE and published by the Institute for Employment Research at Warwick University (Wilson, R A, *Prospects in the Labour Market for the Highly Qualified*, Coventry, University of Warwick Institute for Employment Research, 1995): central forecasts quoted here.



14. If graduate output expands beyond the current target, a significant number of graduates may have to fill jobs that do not require graduate skills or knowledge but could equally well be undertaken by those less qualified - e.g. junior management, clerical, secretarial and sales representative jobs. Recent research on graduate recruitment and utilisation in British industry<sup>4</sup> suggests that this may already be happening in some sectors - for example, financial services. However, this is not the case in other sectors: in steel, the sample manufacturing industry investigated, graduates have filled non-traditional graduate posts and their employers have enriched and up-graded the posts to the benefit of the industry. Even in financial services, some companies have been thinking of changing their job structures to make better use of currently under-employed graduates.

15. The number of graduates working in occupations below higher managerial, professional and associate professional level is still a small proportion of the total in employment (estimated at some 13 per cent in 1991). As work becomes less routine and organisations less hierarchical and more dependent on team-working, some lower-level jobs are being modified and becoming more demanding. And, while significant numbers of graduates may feel that their skills are not being fully used early in their careers, this does not necessarily imply long-term under-use or a substantial excess supply of graduates. But the Government would be concerned if a trend towards recruiting graduates to unmodified, low-level posts developed.

16. In addition to the waste of human resources and the dissatisfaction felt by the graduates themselves, there could be a fall in the graduate salary premium and in the rate of return on higher education: this in time might also reduce demand among potential applicants. It is likely that the currently projected supply of graduates will lead to some decline in graduate pay premiums, although they are likely to remain substantial. The rate of return on the economy's investment in graduates may therefore remain at a satisfactory level. But there is also a considerable risk that faster expansion in graduate numbers would reduce the rate of return below an acceptable level.

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<sup>4</sup> Commissioned by the DfEE and published by the National Institute of Economic and Social Research (Mason, Geoff, *The Developing Supply-Shock: Graduate Recruitment and Utilisation in British Industry*, London, NIESR, 1995)





17. The Government takes the view that, so long as higher education is funded from the public purse, the projected rate of return to the nation's investment should be a major factor in determining the appropriate size of initial full-time higher education. The rate of return will be influenced by the economy's future demand for highly qualified people. Paragraph 12 refers to recent projections that the supply of graduates is likely to match - or may even exceed - employers' ability to use graduates to their full potential in the work-place. The Committee may wish to consider these and the factors which are likely to influence employers' demand for graduates over the next 15 - 20 years.

### International comparisons

18. The Committee may also wish to take international comparisons into account. The UK Government undoubtedly provides more generous student support than other Governments in Europe or the Far East, though precise comparisons are difficult to make. Moreover, the Government's recently published skills audit<sup>5</sup> shows that, in 1994,

- the UK had a stock of higher education qualifications which was higher than that of Singapore, Germany and France, though below that of the US; and
- the UK's percentage of people aged 25-28 with higher education qualifications was higher than that of Germany, similar to that of Singapore and the USA, though lower than that of France.

The extract in the appendix provides more details. The figures do not fully reflect the expansion of higher education in the UK in recent years.

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<sup>5</sup> Competitiveness Occasional Paper: *The Skills Audit: A Report from an Interdepartmental Group*, London, DfEE and Cabinet Office, 1996.



